MONTANA OUTDOORS

NOVEMBER/DECEMBER 1972

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MONTANA OUTDOORS

THE OFFICIAL PUBLICATION OF THE MONTANA FISH AND GAME DEPARTMENT

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THE COVER

This cover, a first for MONTANA OUTDOORS, features a simple form of posterization, a new photographic innovation, of a photo by Mike Sample. Technical photographic work is by Craig Sharpe. Turn to page 14 for more of Sample's work and a feature on the grizzly.

MONTANA OUTDOORS was fortunate to publish some of Gus Wolfe's best camera work in this issue. The bull elk on the back cover is only one example. Look inside for more.

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ASHTON'S

a livable environment for WILDLIFE is a quality environment for MAN

THE LAND AND YOU

It is really not news that more than 100,000 Montanans will soon be out hunting and telling themselves how lucky they are to live in the Treasure State. Many of us probably take this fact for granted, at least during part of the year. However, when fall hunting season rolls around, we begin to appreciate this state's abundance of wide-open spaces and rich wildlife resources. Sometimes, when faced with the vast array of hunting opportunities which Montana offers, we even display a bit of indecision. But all in all, we enjoy and appreciate Montana's "horn of plenty."

Something we continually need to remind ourselves about, however, is what some term the "privilege" of hunting. With one exception, I don't think of hunting as a privilege. To me, hunting represents a way of life—not a privilege, but rather a necessity. Some of us may hunt for a different reason than our forefathers, but most sportsmen will agree hunting represents an important part of their life. The exception to this general "rule-of-thumb" is hunting on private land. This type of hunting is a privilege, a fact that deserves our constant attention.

Asking permission is a basic rule. It may take some footwork to locate the owner so why not start a week or two ahead of time and inquire by mail or phone? At 4 a.m. most people are not at their best, so don't wait until then and expect friendly and exuberant approval to hunt. Keep in mind that you are using something which belongs to another, so take good care of it.

The history of hunting in Montana includes much controversy and today is no different than yesterday. Constant vigilance on our part is required to insure that Montana continues as a leading producer of quality hunting opportunities. Things like strip-mining, poor zoning laws and improper land use threaten the future of wildlife habitat. These, and others we can't even comprehend today, will require our attention if we truly want to insure the future of good hunting.

The need for better landowner/sportsmen relations was basic when I started working in wildlife management 31 years ago. Today, it is even more vital to the future of sport hunting.

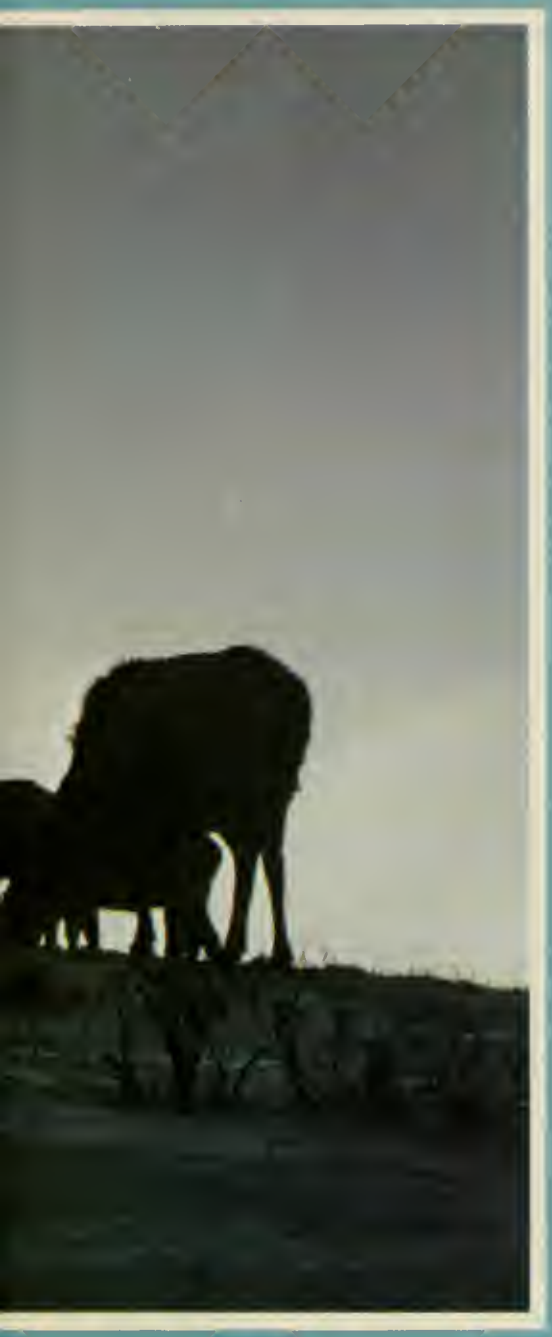
The landowner/sportsman relationship is a "man to man" affair. So give a landowner a reason to like you and don't be the reason he denies all hunting on his land.

Don L. Brown

Don L. Brown, Director
Department of Fish and Game

MANAGEMENT EXPLAINED

why it's not too late for



The sun sets on part of the world famous Gallatin elk herd. (photo by Gus Wolfe)

late hunts

BY JOHN CADA

VIRTUALLY EVERY FISH and Game management policy is met with some degree of controversy. And one of the most hotly contested is late hunts to reduce game herds to a level compatible with the existing habitat.

During years such as this, when the department has scheduled late hunts, vocal opposition is likely. Some will even label the hunt a merciless slaughter meant only to force game animals out of their winter ranges to starve or abort calves.

Department biologists assert that properly implemented late seasons are often needed to keep animal numbers in balance with natural forage supplies. This, they maintain, may result in a smaller, but healthier and more productive herd, to be enjoyed by future generations. And many sportsmen champion the renewed chance to add to their winter meat supply or get the trophy they missed in the regular season. The department recognizes the feelings and opinions of the various interest groups, but the management of a valuable wildlife source must come first—management based on the best available factual information.

the late hunt in the Gallatin

The Gallatin elk late hunt just north of Yellowstone National Park is an excellent example of a special season meant to solve special harvest problems. Although most of the material in this feature directly deals with that controversial season, it can, in effect, be applied to most late hunts.

Late hunts, such as in the Gallatin, are specifically tailored to the needs of that particular game herd and area. Hunter numbers are usually limited and assigned to special hunting units and time periods. Department personnel keep check on the hunt with checking stations and area canvasses. The season closes when the established quota is reached or the time limit set by the Fish and Game Commission expires—whichever comes first.

The Upper Gallatin Canyon has a long history of special management problems and late seasons. The scenic canyon lies between Bozeman and Yellowstone National Park and during part of the year supports the world-famous Gallatin elk herd.

During the summer, this herd inhabits the northwest corner of Yellowstone Park. In fall and early winter, elk migrate out of the park to the Porcupine or Taylor wintering areas in the Gallatin Canyon or to the Bear Creek Game Range in the Madison drainage.

history of the Gallatin elk herd

Indians were undoubtedly the first people to make consumptive use of Gallatin elk. Abundant artifacts scattered throughout the area indicate elk was an important summer food source, probably until the mid-1800's when the white man settled in Montana. And early explorers and trappers passing through the upper reaches of the Gallatin and Yellowstone Park areas in the early 1800's wrote of the abundant elk and other wildlife.

Yellowstone National Park, since its establishment in 1872, has protected elk and other herbivores from hunting. However, the large native predators, like wolves and cougars, were shot, trapped and poisoned in and around the park until the 1930's. So effective were the extermination methods that to this day, wolves and cougars no longer play a significant role in the natural ecology of the Gallatin area.

'Bozeman was settled during the mid-1800's and by the end of the century it was common for hunting parties to make the 40- to 60-mile trip to hunt elk in the upper and lower basins of the Gallatin Canyon. (The lower basin is near Porcupine.) Newspaper accounts reported hunting to be very good some years but exceed-

too late continued

ingly poor others. Old timers concluded there was little point in making the long trip into the canyon until snow conditions were sufficient to start elk migrating out of the park. Today's elk harvest is similarly influenced by snow conditions.

Early livestock grazing had a more-than-minor influence on the Gallatin elk's winter range. By the late 1800's large herds of livestock were driven up the canyon as soon as the snow receded each spring and remained in the canyon until winter threatened. This domestic use left little winter forage for elk when heavy snow blanketed the ground. By 1905 the conflict was so serious the U. S. Forest Service (USFS) began to remove livestock from critical elk ranges. The 1930's saw the completion of this project, but not before the range was severely damaged. Some livestock-elk competition problems continued on private land in the Gallatin and Madison areas and in 1945 the Montana Department of Fish and Game began to purchase land for elk winter range.

Elk die-offs were first recorded in the early 1900's and by 1919 the USFS established a game checking station for the Gallatin Canyon at Squaw Creek to check yearly hunter harvest information. Biological field work began about the same time.

For the 33-year period between 1919 and 1952, a general, either-sex season opened each year in mid-October and closed in early December. During years of early winter storms, the elk would migrate before the season closed, resulting in large harvests. And conversely, hunter success was low when fall weather was abnormally mild.

In the Gallatin, weather seemed to determine total elk numbers as well as the size of the hunter harvest. The herd would build rapidly during periods of mild

THE GALLATIN ELK WINTER RANGE—A RECORDED TRAGEDY

Damage to the Gallatin elk winter range has been documented throughout the years. These four photos show vegetative changes from 1924 to 1972. Notice how the range is improving after late hunts were started in 1964 to manage the herd. (F&G photos)

weather, only to be sharply reduced by starvation during severe winters. Spring field surveys made after the "hard" winters during this 33-year period showed a minimum of 3,000 elk died from malnutrition—a tragic loss of a prized resource. And a look at the severely emaciated survivors would almost make one wonder which were better off—the dead or those still alive.

With such poor habitat conditions, it is not surprising the calf production for this period averaged a low 30 calves per 100 cows. Montana elk herds have a potential for calf productions as high as 60-70 calves per 100 cows.

These losses were deplorable, but a more serious problem existed. Range vital to elk survival was overgrazed by summer livestock and large wintering elk herds, lowering the range's capacity to support elk.

special solution for a special problem

During these early times some felt other management methods could solve these range problems. "Buffer zones" were added to the original park by extending its boundaries and by establishing a game preserve.

Another effort was experimental feeding of hay during severe winters. At first glance this appeared to be a good approach. It soon became obvious, however, that elk used the hay as a substitute diet but only with severe drawbacks. The only reason to artificially feed elk is to support more animals than the natural range can feed. Feeding, then, does not solve the basic overpopulation problem but increases it for the coming year.

Furthermore, grazing on native food plants near hay feeding grounds intensifies, reducing the area's ability to carry elk naturally. This, in turn increases the "need" to feed. So, in the final analysis, feeding hay to elk becomes an addiction rather than a cure, and treatment for the symptoms, not the disease.

And to add another problem—animals become concentrated in hay feeding areas, encouraging massive spread of disease and parasites.

Even the expense of an artificial feeding program becomes undesirable since elk actually do much better on natural ranges which can be purchased and set aside for wildlife use. A game range is a one-time purchase, while an artificial feeding program requires an annual drain on limited finances.

Thus, by the early 1950's it became unavoidably clear that any practical attempts to improve life for the Gallatin elk herd must be directed at bringing the population to a level the natural range would support. This reduction was not possible within the framework of a general season which closed by early December. The elk were simply not available for significant harvests since most of their migrations out of the park occurred during December or later.

From 1953 through 1958, the general season was extended each year until the desirable harvest was obtained. The basic idea was good, but it was only partially successful because of unforeseen problems in season mechanics. The season was usually over before elk migrations out of the park were complete, therefore placing the greatest hunting pressure on the early migrating elk. If continued, such selective seasons might actually have discouraged or halted some elk migratory habits.

To correct the shortcomings of the extended season, some major changes were proposed in 1959.

John Cada is the department's game management biologist assigned to the Gallatin elk herd on the Porcupine Game Range. The Montana native received Bachelor of Science and Master of Science degrees in fish and wildlife management from Montana State University, Bozeman.

The season was to be in two parts. The first part would be a general season held during September and October. The second part would be a limited-participation hunt beginning in December and ending in late January or early February. The intent was to distribute the elk harvest between the various migratory segments without adversely affecting natural migration. Each year for the five years between 1959 and 1964, the early portion of the season was held, but controversy prevented the late hunt.

However, during these years intensive efforts were made by the department to explain the reasoning behind such a season. And in 1964, public support allowed the department to carry through with both the early and late seasons.

The 1964 late season began several weeks after the closing of the general season and gave the elk time to migrate, unhindered, out of the park and become well distributed on their winter ranges. A drawing was held to limit hunter numbers and to assign them by groups to one of the hunting time periods. Hunters were also directed to particular hunting areas to aviod congestion and harassment to migrating elk.

A total of five late hunts were held in the Gallatin area between 1964 and 1972. Each hunt moved the elk population closer to a level the natural range could support. As a result, winter losses attributed to malnutrition declined to a very low level. Calf production increased from 30 to 48 calves per 100 cows.

A less dramatic but much more important improvement can be seen in the elks' wintering areas. Willow, an important emergency food source for elk, is coming back on once depleted sites. Grass cover is improving on critical south-facing slopes and unpalatable tree species like pine and spruce are no longer heavily used, indicating a sufficient source of palatable forage. These

Quality elk hunting comes only from quality habitat. If Gallatin winter ranges were allowed to deteriorate completely, bulls like this would no longer be found. (photo by Gus Wolfe)

too late continued

are all positive indicators that living conditions have improved for the Gallatin elk.

the effect of the late hunt

Does the present late season exhibit any harmful results? The answer has to be "no." During and following the last (1971-72) Gallatin late hunt, no elk were found dead from malnutrition although several were killed by vehicles on the highway before and after the late season. No cows were known to have aborted calves during the winter for any reason. And calf production surveys made this summer (1972) showed the best calf crop (51 calves per 100 cows) ever recorded in the Gallatin. Migrations continued unhindered while the season was in progress and after the season closed, the elk were not concentrated within the no-hunting boundaries of the park but were well distributed over the entire winter range.

quality hunting?

What about the quality of the hunt? The best judge would be the participating sportsmen. Interviews in the field and at the checking stations showed nearly all hunters thought the special season was as good or better than their experiences during the general season. Most were pleased that snowmobile use was restricted.

Over 8,000 people throughout Montana applied for 1,000 special permits for the 1971-72 late hunt. Of the total number of permit-holders, 60 per cent showed up to hunt. Most of the non-participating group (the other 40 per cent) were contacted by telephone to determine why they hadn't hunted. Most indicated they wanted to but were unable to hunt because of weather, sickness or other personal reasons. Of all the permit-holders contacted, only four said they were opposed to the hunt and applied for a permit to keep someone else from hunting.

Healthy and productive game populations are unalterably dependent upon keeping herd size within the long-term capacity of wintering habitats. Hunting seasons are the most effective game management tool for maintaining this balance. Effective seasons are those which tailor dates, hunter participation and harvest quotas to each management situation.

Tradition and prejudice have no place in the proper design of a management season. Thus, if we insist upon game management based on facts, we will be insisting upon tailoring each season to the needs of the species and its habitat. And in some cases, that means late hunts.

edited by
Bill Schneider

THE CATCHALL

flood plains and you

Disastrous floods this past year in South Dakota, Pennsylvania and other areas have re-opened an old and controversial wound—flood plain zoning restrictions.

After each incident, cries of condemnation echoed across the nation for developers who backed housing in flood plains and for public officials who allowed it. And, fortunately, along with the cries came nudges for politicians to dust off zoning legislation.

Probably the quote of all quotes, however, came from Rapid City mayor, Don Barnett. His South Dakota city was ravaged by a June 9th flood resulting in the tragic loss of 200 lives and $160 million in property damage.

In late August, Barnett was quoted by Associated Press as admitting that himself and other city officials were at least partly responsible for the senseless loss of life and personal property because they lacked the foresight to predict a devastating flood that was sure-to-come "s o o n e r or later."

"This was not a once-in-a-century thing," B a r n e t t noted. "Rapid Creek floods about every 10 years and we knew it. And we should have taken the steps in anticipation of a bad one."

He also said the city leaders (included himself) "didn't have the courage to stand up to developers who wanted to put high-density developments in the flood plains."

(Rapid Creek, where a major part of the damage occurred, is a fair sized stream running directly through a highly populated portion of the city.)

But who's really to blame for the disasters such as the Rapid City flood? City officials who consented to the housing? The developers who built it and sold it? The dam builders who built the dam that burst and caused a major part of the damage? All three, in part. But there's another culprit—the homeowner. All the scenic stream-side homes aren't worth the nails holding them together without buyers.

So, don't build your dream house in a flood plain; it could turn into a nightmare.

(Watch future issues of MO for a detailed special feature on the disadvantages of flood plain housing and the need for strict zoning restrictions. Besides the danger to human life, rapidly increased building along our waterways seriously endangers Montana's fish and wildlife resources and outdoor recreation potential.)

SECOND ANNIVERSARY

Two years ago, the first MONTANA OUTDOORS appeared in many homes. Since then, we like to think the magazine has steadily improved and played an ever-increasing role in the promotion of sound resource management.

when a success is really a success

NATIONAL HUNTING & FISHING DAY
September 23, 1972

The first National Hunting and Fishing Day was probably a success in most minds, as was the first Earth Day. Across Montana, hundreds took part in open houses sponsored by outdoor clubs and this department.

That's great, but as is predictable, many of the most active were, in fact, hunters or anglers themselves. They enjoyed the festivities and probably l e a r n e d some things.

However, the real success of the day was when someone totally unfamiliar with the sportsman's contributions to conservation attended one of the open houses. Here, a little girl is pictured at the open house in the Capitol Rotunda in Helena. Yes, she's certainly too young to understand the meaning behind the day, but

her very presence is heartening.

Hopefully, she's off on the right foot to a growing concern for the natural things that surround her. Later, she may become active in the struggle to save a quality environment.

And if she does, that's when a success is a success.

recycled paper

And we hope to do even more in the future.

That first issue, November/December 1970, featured "The Grizzly: Montana's Pride" with a feature article and a raft of color photos, including the cover, by Mike Sample.

Well, two years later, here we are with an article on the grizzly and another selection, including the cover, of Mike Sample's grizzly photography.

We thought it was appropriate and hope you agree.

A WILD AND SCENIC RIVER

-what does it mean-

At least three of Montana's scenic waterways — the Yellowstone, the Missouri and Rock Creek, near Missoula—are being considered for designation as "wild and scenic rivers."

After reviewing some of the testimony given at the various hearings, it's fairly clear that some of those most involved fail to understand the meaning, purpose and provisos of the Wild and Scenic Rivers Act, passed by Congress in 1968.

So, we dug out our copy of the law and waded through its congressional lingo and sorted out the major points for Montanans or anyone else interested in the possible ramifications of the wild river designation. Casting aside as much of the legal rhetoric as possible, we emerged with these points.

—The purpose of the Act is to protect certain selected rivers with their remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or similar values in a natural free-flowing condition for the enjoyment of present and future generations . . . And to complement the national policy on dams and such construction with an equal policy to preserve the above values.

—"Free-flowing" is defined as "without impoundment, diversion, straightening, rip-rapping or other modification."

—A stream must only offer one of the various values to qualify it for inclusion in the Act, not all of them.

—The streams designated under this law will then be classified in three separate uses. (1) "Wild"—free of impoundments, generally accessible only by trail, with primitive watersheds and shorelines and unpolluted water, (2) "Scenic"—shorelines and watershed largely undeveloped but accessible in places by roads and (3) "Recreational" — shorelines readily accessible by roads or railroads, shorelines partly developed, may include some impoundment or diversion in the past.

—The federal agency charged with administering the river will set detailed boundaries for the protected area not including more than 320 acres per mile of shoreline on both sides of the river.

—The Federal Power Commission (FPC) cannot license the construction of any dam, water conduit, reservoir, powerhouse, transmission line or other project works under the Federal Power Act on a wild and scenic river. The FPC can, however, authorize water projects above or below the section of the river deemed wild and scenic.

—Mining and mineral leasing can go on as usual with a few regulations "to protect and enhance the values which caused it [the river] to be included in the wild and scenic river system.

—Evidently, the land within the boundaries of a wild and scenic river is still subject to presently established federal agency policies. The Act reads, "The Secretary of the Ag-

Just what are we trying to stop?

The following sequence of events was reported in several outdoor publications across the country this summer. It should be a lesson to all advertising agencies and all who seek their services.

It seems the Kool Aid Division of General Foods came out with a bold "STOP HUNTING" notation on the back of each package of the popular children's drink.

Harry Woodward, director of the Colorado Division of Game, Fish and Parks was angered and wrote Robert Silkett, president of the Kool Aid Division. He asked how the division would feel about all state conservation agencies advocated a nation-wide boycott on all General Foods products in all state literature sent to the public. Silkett quickly replied with a short "I get the point" and indicated the label would be taken off the market.

Many other sportsmen, conservation agencies and outdoor and gun magazines similarily chided General Foods for their advertising verbage. Woodward even suggested General Foods use the backs of their packages to promote sound conservation actions instead of bad ones.

And then, in rebuttal. Silkett and other General Food representatives exclaimed their advertising had been completely misinterpreted.

"We had no idea or intention to come out with some statement about being for or against hunting," Silkett wrote the GUN WEST magazine. "That just isn't our business."

He explained that the notation was part of the package that can be cut out and used as a bookmark. He defined "Stop Hunting" as "Stop hunting for the reader's place in the book."

Skilkett went on to say it would centainly be foolish for them to advocate a ban on hunting since "most of us are hunters ourselves."

herons or cranes?

Great Blue Heron

Little Brown Crane

For the first time this year, Montanans were allowed to hunt the Little Brown Crane, also Lesser Sandhill Crane, *Grus canadensis canadensis.*

Evidently, confusion existed among some hunters on the identity of the "Little Brown Crane." Some thought the Great Blue Heron was a crane.

Although the two birds are somewhat similar, several striking characteristics and behavioral patterns separate the two. Besides being generally bluish-gray, Great Blue Herons, *Ardea herodias,* have plumes on the back, breast and crown. Little Brown Cranes are notably brown with no plumes.

In flight the two can easily be distinguished. The heron draws its neck back as if it's sitting on its shoulders, while the crane keeps its neck outstretched when airborne.

Also, Great Blue Herons are closely associated with water and usually stay in marshy areas. Cranes, in contrast, seem to prefer open fields and hill tops.

The illustrations, by Vern Craig, graphically show the differences.

Great Blue Heron

Little Brown Crane

riculture in his administration of a [wild and scenic river] may utilize the general statutory authorities relating to the national forests in such manner as he deems appropriate to carry out the purposes of this [law]."

—Rivers being considered for inclusion in the wild river system should be reviewed by the Secretary of Interior and/or the Secretary of Agriculture to determine management plans until a final decision is made. "Special attention shall be given to scheduled timber harvesting, road construction, and similar activities that might be contrary to the purpose of the [law]."

—All existing rights, privileges and contracts concerning federally owned lands will remain intact. For example, grazing leases will not be cancelled even though their allotment dips within the boundaries of the wild river system.

—Nothing in the Act will lessen the State's right to manage resident fish and wildlife.

—Should the United States take an existing water right under this Act, the present right-holder will be justly compensated for the loss. The Act's language seems to indicate that this will only occasionally occur.

—The State will retain jurisdiction over the water even after inclusion in the system.

—Nothing in the Act would conflict with any present interstate compact.

—The Secretary of the Interior or Agriculture (depending on the type of federal land involved) "may grant easements and right-of-ways upon, over, under, across or through any [wild river] in accordance with laws covering the federal lands." (This means, for example, a power line

Next Time

Watch for these features in the January/February 1973 issue of MONTANA OUTDOORS

—the development of eastern Montana coal reserves

—game preserves

—license questionnaire

—in defense of the perch

—nature's place for predators

—the snowmobile's place on public lands

recycled paper

THE CATCHALL

easement could be granted through a wild river on national forest lands, but not on land administered by the National Park Service.)

Sometimes the rhetoric of the Act gets confusing and interpretation leaves small shadows of doubt. But one point stands out—the Wild and Scenic Rivers Act represents one of the few available avenues for preserving some of this state's unique waters in an unaltered and "free-flowing" state.

CHECK IN FOR WILDLIFE

This fall many sportsmen will see a "Hunters Please Stop" sign as they return from their hunt.

Some may not stop because they don't fully understand the checking station concept.

These stops serve as data-gathering devices to help us compile the needed statistics to accurately set seasons and quotas and decide on future management policies.

They aren't there to inconvenience the hunter or find some technical wrongdoing in his hunt and thus get a "pinch."

Of course, we hope all hunters will strictly adhere to all game laws, but we don't lay out an intricate network of stops to catch as many violators as possible.

If you're generally concerned about the future of sport hunting and Montana's wildlife resources, then we suggest you stop if you pass by a checking station.

RESPECT YOUR GAME

Probably the most disrespectful place you could think of for your trophy is on your auto for all to see . . . and dislike.

Hang it on your wall or on your home or as a last resort, take photos to remember it by and then store it somewhere out of sight.

But don't wire it to your vehicle and display it wherever you go.

In view of the tremor crossing the nation to ban all hunting, this unsavory act can only cause grief for one group—sport hunters.

A THOUGHT TO PONDER

If a tree is born in the midst of the wilderness, lives there and dies there without man ever seeing it or knowing of it, was it of no value?

the future of our national parks

National parks are especially important to Montanans because two of the largest—Glacier and Yellowstone—are, in fact, part of the Treasure State. The National Park Service (NPS) also administers the Bighorn National Recreation Area, south of Billings, Custer Battlefield National Monument and several other smaller sites in this state.

So, management policies in the parks (not covered by most state regulations) are, of course, deserving of much attention from Montanans. During this year, the 100th birthday of the national park concept, much criticism has been leveled at some of those policies.

Avoiding comment, we'll offer the recent recommendations of the Conservation Foundation, a Washington-based, nonprofit environmental group, as a springboard for discussion.

The organization's year-long study and subsequent report, "National Parks for the Future", was circulated in late September. Since then, it has been the topic of many debates and editorials.

The major thrust of the report was "an immediate moratorium on road building, parking lots and other auto-oriented improvements" within the parks and at the same time to have Interior Secretary Rogers Morton name a task force "to study the entire question of private automobiles in the parks and alternate methods of intra-park transportation."

The organization also recommended:

—that the NPS reassert its traditional role as conservator of the timeless natural assets and reject the widening of that function under the notion that parks can be all things to all people.

—that greatly expanded citizen participation should be fundamental in the planning and management of the National Park System.

—that the NPS should serve urban America by assuring a distinctive recreational opportunity based on natural values.

—that the national parks should be used as a showcase of man's proper stewardship of land, water and air.

—that lands, facilities and/or programs clearly inconsistent with the preservation function should be divested or transferred.

—that park facilities now operated by private concessionaires should be phased into management by nonprofit, quasi-public corporations.

—that federal information centers should be established in major metropolitan areas to instruct city dwellers in planning excursions to national parks and other public lands.

—that a long-term program of concessionaire replacement should be started on a pilot basis and proceed until the parks are free of major private businesses and the public has regained full control of facility planning and operations.

recycled paper

We're losing our ghost towns!

Vandalism (above) and other thoughtless destruction of Montana's ghost towns is inexcusable. Garnet (below) is representative of the depleted condition of most ghost towns today. (photos by Robert Chadwick)

by Robert Chadwick

THE YEAR IS 1893. The booming mining camp of Granite—several thousand people perched on a mountaintop above Philipsburg—has shipped out $30 million in silver ore since the 1870's. But this is a year of financial panic. The price of silver has dropped precipitously. On August 1st, the mines abruptly close down. Three thousand people leave town within 24 hours, a con-

tinual stream of almost panic - stricken souls, hurrying down the mountain carrying baggage, backpacks, babies. Granite is on its way toward ghost town status.

Today, in 1972, only a few dilapidated buildings remain to remind us of the town's illustrious past. The stone Miner's Union Hall is crumbling and the famous Bimetallic Mill is a charred ruin following a fire several years ago.

Granite is just one example. Montana contains several dozen partly preserved ghost towns and historic mining camps, plus the remains of hundreds of prospectors' cabins and mine buildings scattered through the hills. These are mute testimony to the placer (stream) gold rushes of the 1860's and to the bedrock mining ventures of the late 19th century which precipitated permanent white settlement in the state. Many of these towns are abandoned; a few families still eke out a living in others. Bannack, the first territorial capital, Marysville and Elkhorn are all still populated and are not, strictly speaking, ghost towns. But they live precariously. In August 1971, a fire swept the Marysville area, sparing the town but destroying the famous Drumlummon Mill, the source of much of early Helena's wealth. But Granite, Castle (a silver-lead mining community secluded in the Castle Mountains) and Diamond City (a gold placer camp on Confederate Gulch east of Canyon Ferry Reservoir) are empty.

For a few wild months in 1866 at Diamond City, the "Montana Bar" yielded as much as $2,000 in gold to the pan. The town, reportedly containing 10,000 persons, strung helter-skelter along the gulch.

Later, early panning and rocker separation gave way to larger-scale hydraulic operations. As the walls of the canyon were hosed down to wash out the gold, the flimsy shacks were either raised on stilts or buried under gravel washed down by the jets of water. Almost nothing remains of Diamond City.

These sites are part of the physical remains of a cultural heritage. How important is it to save them?

The Montana Ghost Town Preservation Society, a non-profit organization, was founded in 1971 by people who want to save them. The Society's goals, according to Secretary McKinley Anderson, are "to acquire, preserve and maintain ghost towns and historic sites in Montana so they may become the parts of a living museum to commemorate the establishment of the Western Frontier." The Society, Department of Fish and Game and Montana State University students joined forces recently to clean up Gallatin City, a historic settlement at the headwaters of the Missouri River which will be turned into a recreational site.

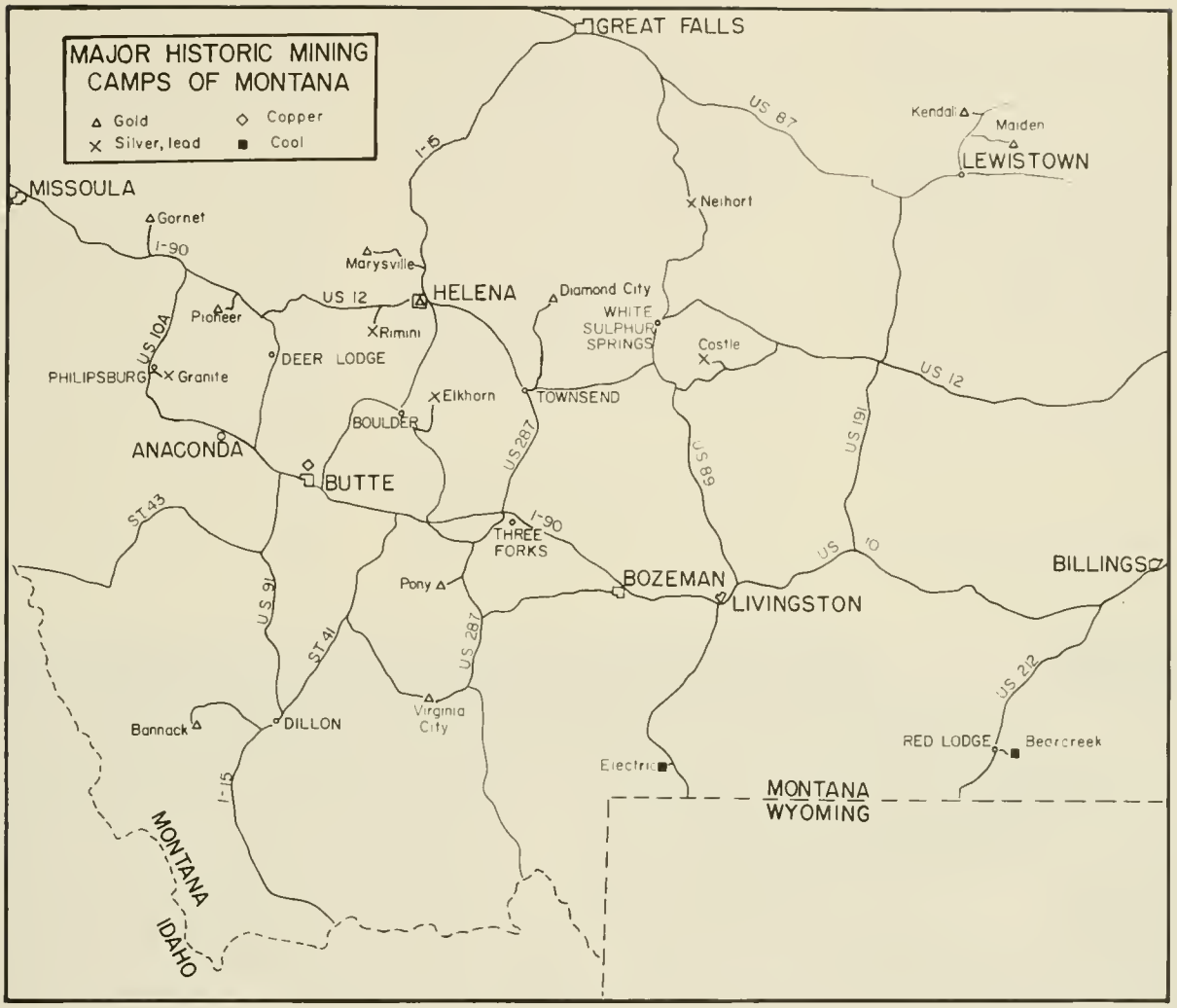
For a variety of reasons, ghost town preservation is becoming more difficult. Montana's severe weather crumbles and decays the aged buildings. And "human erosion", in the form of senseless vandalism and souvenir collecting, robs Montanans of their past. On occasion landowners have razed or burned old mills to avoid possible liability problems and to extract additional metal trapped in the mill foundations. And old buildings are demolished to make room for modern housing and parking lots.

The problem of vandalism is particularly severe and is getting worse. During the winter of 1970-71, three buildings were destroyed at Garnet, in the mountains northeast of Missoula, apparently by thoughtless snowmobilers entering the deserted camp in winter. "We now have a caretaker there year-round to prevent a recurrence", says Don Mellgren of the Bureau of Land Management. In other communities, buildings have been torn down for their old bricks and boards or tipped over for bottles beneath them. Doorknobs, railings and

photo courtesy of Montana Historical Society

photo by Robert Chadwick

1900—The main street of Granite, MT—1972



other antique objects have been carried away. Too often, it is forgotten that deserted buildings are owned by someone, whether private individuals or government, and nobody has the right to destroy or remove the property of others without permission.

What solution is there for vandalism and thoughtlessness? Buildings could be boarded up or fenced off, roads blocked and guards and caretakers hired. But the best solution lies with the attitudes of people. If the citizens of Montana can develop and communicate an attitude of respect for these sites and for what they signify in the history and development of our state, these problems would diminish.

If we renovate some of our most attractive ghost towns—restore their original atmosphere without undue commercialization—we may increase tourism and give our state's economy a much needed boost. Other outdoor activities can be encouraged in the vicinity of many of these ghost towns and can be enjoyed by residents and non-residents alike.

Montana's ghost towns are fast disappearing. At the present rate of attrition, little will be left in a decade or two. John DeHaas, vice-president of the Montana Ghost Town Preservation Society, and state preservation coordinator, emphasizes, "We must leave some physical evidence of our heritage for future generations. The ghost towns and public sites belong to the people and they can save them if they want to. Contact the Society at Box 607, Bozeman. Once the ghost towns are gone, they are gone—photographs and records cannot compare with the presence of the real thing."

Visit a Montana ghost town. Listen to the wind moan through creaky, dilapidated buildings. Try to visualize the roaring camp in its heyday and its hearty, frontier-loving people. Think of their contribution to the State of Montana. And hope your children and grandchildren will be able to stand on the same spot, see the same sights and think the same thoughts.

Speaking for the Montana Ghost Town Preservation Society is their president, Robert Chadwick. He is an associate professor of geology in the Earth Sciences Department at Montana State University, Bozeman. Chadwick received his Bachelor of Science degree from Princeton University, New Jersey. He was awarded his Ph.D. at the University of Wisconsin, Madison.

THE STORY OF man's encounters with the grizzly bear are played and replayed in Montana's history with the final curtain still raised.

Early Montana explorers were unconcerned with the future of North America's most feared wildlife species. They were only concerned with their own fate, which, unfortunately, sometimes conflicted with that of the grizzly.

So it is that today's frequently voiced man-grizzly relationship was born.

Familiar with the smaller black bear, the early explorers were unprepared for the "great white bear" of the western plains, the Silvertip, the grizzly as we now call him since the writings of Lewis and Clark. Those intrepid adventurers expressed a preference to meeting a half-dozen hostile Indians rather than one grizzly bear.

Now, of course, the plains grizzly is gone, a victim of man's takeover of its native habitat. The great bears still roam here, but only in the wildest mountain retreats.

Montana contains the only sizeable grizzly population left in the contiguous 48 states. Here, the "beast that walks like a man" haunts the wilderness—de facto and official. Yellowstone and Glacier national parks boast of their grizzly numbers, but in both, the bear faces an unnatural environment filled with the works of man (e.g. roads, campgrounds, concessions, dumps).

In the truly wild places of Montana's Shining Mountains—the Missions, the Cabinets, the Bob Marshall and the Lincoln Scapegoat—the grizzly goes about its business of life in a free, untamed fashion. You could say the wild grizzly lives there "in style" with a self-confidence matched by no beasts and few men. Seldom, in these non-park wild areas, is there a bloody conflict between wild grizzlies and wilderness en-

thusiasts who visit the bear's back country home.

how a grizzly dies

For many decades grizzlies and hunters have existed in a relatively stable situation. In Montana, the take by legal hunting has remained stable through the years.

Of interest, however, is the take by stockmen, predator "controllers," protective landowners and the National Park Service (NPS) which exceeds the total taken by sportsmen, at least in recent years. In the 50's and 60's hunters often bagged more grizzlies than were killed otherwise, a trend which reversed after the closing of the dumps.

In 1972 hunters took 22 trophies in Montana, slightly more than the 20.8 average (ranging from 12 to 30) over the last six years. The sportsmen's take during 1972 represented less than half the total known kills.

The "administrative" kill of grizzlies appears to be a serious, but unavoidable, fact of life. Both the NPS and this department trap bears, some of which obviously represent chronic nuisances and thus must be dispatched. A few also die in the trapping-drugging-transporting-releasing process.

Why is the administrative kill so high? Or better yet, why is it necessary at all?

It falls right back on the old problem of man vs. grizzly for the same habitat.

Man has invaded and altered the grizzlies' home in and around Yellowstone Park, the only area this department still continues grizzly trapping-transplanting activities. The omnivorous grizzly, one of nature's opportunists, picks, without exception, the most readily available food supply—animal or vegetable. Until recent years, that often meant gorging themselves with garbage at one of many dumps.

Garbage consumption probably wasn't completely "new" to the grizzly. As long as man inhabits

THE COVER STORY

HUNTING THE GRIZZLY

ARE PRESENT HUNTING REGULATIONS FORCING NORTH AMERICA'S MOST FEARED SPECIES OF WILDLIFE INTO EXTINCTION?

BY BILL SCHNEIDER

The salvation of the mighty grizzly, a symbol of the wilderness, lies in the protection of our wild lands—the bear's habitat—not in the silence of the hunter's gun. (photo by Mike Sample)

THE GRIZZLY continued

an area, trash almost always appears. This causes occasional man-bear conflicts. But aside from the man conflict, most people just can't visualize the wild grizzly, a symbol of the wilderness as a scavenger in human waste piles.

In 1969-70, the dumps were closed, forcing the bear to again depend on natural food. Unfortunately, many didn't or couldn't and a stream of complaints followed in close order. These complaints signaled the beginning of the inevitable man-bear conflict.

the grizzly hunter

The true grizzly hunter seeks the wild and becomes a part of it. If he should, by a combination of skill and luck, bag a grizzly, he has experienced a situation he will recall all his life. Every second of the stalk will be vividly remembered with no tremors from a bad conscience.

If he does not bag a grizzly, he doesn't fret, for he has still shared a unique and moving experience. The grizzly hunt isn't just a test of man against beast, it's a challenge to man in a primitive environment.

No other animal in North America has the first-and second-strike capability of an aroused grizzly. Thus it's not surprising that the bear is considered the ultimate trophy when taken in a fair hunt.

The legal take by sportsmen doesn't endanger Montana's great bears. But "unethical" killing of the grizzly has unknown ramifications. And the more serious and important question of preservation of the grizzly's habitat—and hence the animal itself—remains unanswered.

The concerned sportsman has a mutually beneficial relationship with any animal he pursues, including the grizzly. And he's concerned with the healthy perpetuation of all wildlife—game and nongame.

Hunter contributions of time and money may even have preserved this debate for today. For without constant vigilance by sportsmen, the grizzly may have long since yielded to man's conveniences. (Sportsmen have traditionally condemned any work of man that destroyed the grizzlies' wilderness habitat).

how to hunt

The most basic rule of thumb is to locate an area where one might reasonably expect to find grizzlies. In a word, the hunter must seek wilderness. In most cases, this involves back packing or the use of pack animals.

Regardless of how skilled the grizzly hunter may be, a great part of his success depends on luck. Skill, physical condition, patience and the right equipment are all needed, but without a little good fortune, the hunter will return with an empty bag.

Grizzlies often frequent low brushy areas to feast on berries or rock slides in search of rodents.

So get to a good vantage point and start glassing. Make sure the wind is in your favor and make as little noise as possible. Grizzlies have very poor eyesight, but their hearing and sense of smell rank among the best.

The hunter owes it to his magnificent quarry to use equipment adequate for hunting under adverse terrain, vegetative and weather conditions and to never risk wounding one of the great bears. Never shoot when a killing shot cannot be made.

life history

The hunter should read all he can find about grizzlies. Some information about the habits, food and normal environment of the grizzly is presently available. But the hunter will find a great deal of fiction and little of real use.

The grizzly differs from the smaller black bear by commonly having a pronounced forehead, giving its face a dished profile. This, however, isn't noticeable on all bears. Grizzlies have a prominent hump above the shoulders. The claws on its front feet are a few inches long and show plainly, whereas the black bear has small claws. A mature grizzly will leave a larger track than a black since it is usually a much larger animal. Grizzlies can be almost any color from light blond to jet black, but almost always the long silver-tipped guard hairs adorn its back, giving it a frosty look.

A common answer Montana guides give their clients about how to tell a grizzly from a black bear is, "If you see a black bear you may wonder if it's a black or grizzly, but if you see a grizzly, there won't be any doubt in your mind."

A mature grizzly usually weighs from 300 to 700 pounds with rare individuals tipping the scales at more than 1,000 pounds. Bears, like humans, display wide differences in size and appearance be-

WILL A MORATORIUM ON GRIZZLY HUNTING INCREASE TOTAL BEAR NUMBERS?

PERHAPS THE REASON GRIZZLIES ARE TOLERATED IN WILD AREAS IS BECAUSE THEY ARE HUNTED.

tween individuals of the same age. Grizzlies sometimes live to be 25 years of age in the wild and longer in zoos. As with most wildlife, they are very territorial in nature and have a definite social structure. Although reliable information is lacking, it's believed that grizzlies use a territory which they defend against intrusion by other bears. This means that available grizzly habitat will hold only so many bears and no more —the reason wildlife managers are so concerned, not only about habitat interference by man, but about maintaining an adequate harvest of surplus bears.

department regulations

This year any Montanan or nonresident willing to pay the required license fees could stalk a grizzly. The regulations changed in 1971, however, to require all grizzly hunters to get their permits before July 1, 1972. This action eliminated the grizzly kill by a hunter who had obtained a grizzly license for a small fee "just in case" he stumbled onto a silvertip while after elk, deer or some other big game. Now, those sportsmen stalking the grizzly are those who planned to hunt the bear at lease five months in advance.

License fees also went up this year with the resident permit going from $1 to $5 and the nonresident from $25 to $35. (Nonresidents are required to have the $151 general license in addition to their grizzly tag, and both residents and nonresidents must purchase a $25 trophy license if they down a grizzly.)

Some people contend a moratorium on grizzly hunting is needed until it's proven that present regulations aren't endangering the bear's existence. But department information on hunter harvest has convinced professional wildlife managers that, at this time, more restrictive hunting regulations aren't needed. The existing habitat supports "only so many and no more." A moratorium won't change that basic fact.

And even with a moratorium, the killing of the bear will not stop. In fact it may mean just the opposite. Without a hunter harvest, the bear population will experience a normal, annual increase together with increased strife between bears. This can only mean an increase in "administrative" kills—bears shot as rogues, marauders, stock killers and campground nuisances. Population losses will occur anyway to meet the dictates of the habitat.

Perhaps the situation can be more easily viewed if compared to a sponge soaked with water, the sponge being the habitat and the water the grizzly. The sponge (habitat) is now at a saturation point and if more water (bears) is added, the sponge will drip. In short, bears will be forced (dripped) out of their wilderness ranges (sponge), only to be destroyed as nuisances . . . or even worse, captured and condemned to a life of exile in a zoo with the Sunday visitors throwing peanuts and fear-tinged glances between the bars. (See editorial, page 35.)

No, the future of the grizzly is not endangered by the sportsmen but by those who wish to destroy the wilderness the bear needs to survive.

grizzlies and wilderness

Very likely, the reason grizzlies are tolerated in wild areas is because they are hunted. Hunting keeps them wary of mankind and removes the normal, annual population increase which, if unharvested, would certainly cause grizzlies to try to live outside the wilderness. This expansion would rub mankind's fur the wrong way causing only grief for the grizzly.

The bear doesn't inhabit wilderness because it likes the long, cold winters. Its range is now limited to wild areas because those are the only places the general public tolerates the most feared species of North America wildlife. And fortunately for the grizzly, the wilderness also provides enough food and security.

In the cold, objective eye of science, grizzlies respond to natural laws no different than other wildlife populations. A healthy grizzly population must be managed on the same biological basis as any other animal. This means if the population trend is upward, and a stable population is desired (as is the case with Montana grizzlies), then a closely regulated harvest is the answer. If the trend is down, more restrictive regulations will control the harvest. But a downward trend in the grizzly population indicates an environmental dilemma, normally traceable to diminishing habitat, not a too-much-hunting problem.

Neither the idealistic sport hunter nor the well-wisher-of-wildlife from a megalopolis will have a significant effect on the fate of the grizzly unless they realize the bear requires large amounts of quality habitat. That translates into wilderness—de facto or official—where the "great white bear" can live on its non-negotiable terms imposed by millions of years of evolution. Those terms include the hard fact that humans in their mundane pursuit of everyday life and grizzlies in their routine pursuit of food are not compatible in the same space.

Thoreau said, "In wildness is the preservation of the world," a statement most people fail to understand in all its implications. But there is no doubt whatsoever that in wilderness is the preservation of the grizzly.

THE GRIZZLY

The wild grizzly lives wild and free in the Bob Marshall Wilderness (above) and in a few other back country areas. The great bear will only be here as long as the land remains wilderness. Intruders into its domain rarely catch a glimpse of the bear, whose presence means the land is still wild. Usually only an occasional track (left) will reveal its existence. (above photo by Gus Wolfe, left photo by Mike Sample)

The grizzly eludes all but the most skillful (and lucky) hunters who invade its wilderness home. (Photo by Mike Sample from "Slivers of Grass", by Telemark of Montana, Missoula.)

IN THE WILDERNESS IS THE PRESERVATION OF THE GRIZZLY

Sol's finale, the closing of the day, boasts the work of the Master Artist.

Old Sol

THE MASTER PAINTER OF MONTANA'S LANDSCAPE

PHOTOS BY GUS WOLFE

No amount of speed can free the horse from Sol's silhouette.

Man, in his bungling way, can never re-decorate Sol's Christmas tree.

Known to few eyes, Sol spreads a harsh silence on shining snows.

The dragonfly knows Sol finds the smallest wonders of nature and illuminates them for all to see.

Sol turns water into sparkling silver.

Old Sol

As golden clouds reflect its farewell, one can only marvel at Sol's colorful closing which adds beauty to all the outdoors.

Never has
the paintbrush been so vividly painted.

(See page 2 and the back cover for more of Sol's and Gus Wolfe's work)

CLEARCUTTING

—what it does for wildlife—

The Pacific Northwest (and this includes Montana) contains the most productive forest land in the world. Although it covers only seven per cent of the continental United States, this region produces nearly one-third of the nation's timber. More than one-half of the Northwest's commercial forest land belongs to the federal government and is administered by the U.S. Forest Service. So when U.S. Forest Service policies are questioned, it is no small matter.

One forest management practice, clearcutting, has recently been the source of much controversy. Clearcutting is done in strips, patches or blocks and all trees in the area are removed leaving a barren spot. To return the clearcut to productivity, it is artificially seeded (planted with small nursery trees) or left to natural reforestation*.

Many people oppose all clearcutting and claim other methods* should be used to harvest timber. The U.S. Forest Service and the timber industry often defend clearcutting by claiming it is the best and most efficient method for certain forest areas.

Aldo Leopold, a noted conservationist, has described wildlife as a "phenomenon of edges." He meant wild animals thrive where different kinds of plants exist. For example, wildlife often appears where a brushy draw bisects a grassland, next to a dense forest, or where an opening meets a dense forest. All of these "edges" mean diverse plant growth, and, in turn, more wildlife habitat.

Scientific wildlife management makes use of the edge phenomenon, and clearcutting sometimes changes the environment to produce more edges and better habitat for wildlife.

Do you understand why?

Because a mature forest offers good shelter for big game and other wildlife, but little food. The vegetation deer and elk need for food grows in open areas. When an area is clearcut, the game has the forest around the clearing for shelter and the open space for food. The two areas border each other and produce the all-important interspersion of plants.

Clearcutting, when done in moderation, can improve winter range* areas. (But clearcuts

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DEFINITIONS*

natural reforestation: the natural process of trees growing from seeds to seedlings to small trees to mature trees with no artificial planting.

other harvest methods: alternatives to clearcutting, such as *selective cutting* (Trees removed either singly or in small groups at intervals of time, causing little disturbance in the forest and resulting in natural reforestation and many-aged stands.), *shelterwood cutting* (Timber removed in a series of cuttings. The shelter, or older, trees are removed when the new, even-aged stand is well established.) and *seed tree cutting* (Timber removed in one cut except for a few mature trees of the desired species. These are left singly or in small groups to seed the cut naturally and establish an even-aged stand.)

winter range: winter habitat for wildlife, especially big game. It must contain all life essentials, just like summer range.

erosion: wearing away of the earth by forces of nature. This process is increased when vegetation is removed.

siltation: the settling of small soil particles in streambeds.

spawn: deposit eggs.

buffer strips: an area of natural forest on each side of a stream.

Critics of clearcutting have some valid points. Here clearcutting was overused, destroying the physical beauty of the land. Several small clearcuts would have been more beneficial to wildlife than one large clearcut area. (F&G photo by Keith Seaburg)

above a 5,000-foot elevation don't improve the winter range because too much snow falls in these areas and covers the food supply. Consequently, deer and elk don't winter at these elevations.)

But critics of clearcutting have valid points also. Because clearcutting has been overused in the past, destroying wildlife habitat, increasing erosion and creating massive eyesores, critics often condemned the practice. Several small clearcuts (20 acres or less) are much better for wildlife than one large area because more edges are formed by the smaller clearings. More edges mean more of the things wildlife needs. Clearcutting does harm if it is too extensive. Elk and grizzly bears, for example, cannot tolerate contact with humans, so road building can be a particularly bad aspect of clearcutting.

Streams near logging activities need special consideration. When logging operations take place near a stream, the wildlife and the stream are both upset. This is especially true if the clearcut goes across (or very close to) the stream, causing increased erosion* and siltation* in the streambed. Siltation can destroy a trout population because trout spawn* in clean, gravel-bottomed streams. To minimize logging effects on a water environment, either the area should not be logged, or large buffer strips* should be left around the stream. In drainages containing famous trout streams such as Rock Creek near Missoula, logging should not be allowed. Machinery should never be driven across the streambed or operated in the buffer area and debris should be kept out of the streambed.

Each individual logging operation is different and each needs different consideration. Large cuts across drainage areas are generally recognized as bad management; small cuts at the correct elevations are not as bad.

National forest land belongs to the public for recreation, fish and wildlife management and wilderness protection . . . not just timber production. Any forest management activity that upsets the natural environment and destroys wildlife habitat deserves criticism.—*Cecelia Huls*

SUGGESTED PROJECT

Plan a field trip to a forest near your school and observe clearcut areas. Decide if the method was used wisely and then contact the U.S. Forest Service or logging company responsible and tell them what you have decided.

KOKANEE

EACH FALL MONTANA FISHERMEN FLOCK TO WELL-KNOWN KOKANEE SPAWNING STREAMS, AND VERY FEW RETURN HOME WITHOUT A CATCH OF THIS MOST SUCCESSFUL EXOTIC.

by Otis Robbins

OVER THE PAST century a wide variety of exotic plants and animals have been introduced into the fields, forests and waters of Montana. The dandelion was an accidental introduction and has become a landowner's nightmare. Carp were deliberately planted, but still created problems for fishermen and waterfowl.

But unlike some plants, kokanee salmon, native of the Pacific Ocean, successfully adapted to its fresh water, land-locked environment and has been popular with Montana anglers ever since.

The small salmon was planted in Montana lakes around the time of World War I. At least three of the five species of Pacific salmon were planted, but the kokanee appears to be the only established variety. In many areas spawning is adequate to sustain a fishable population; in others it needs an "assist" from man. In either case, good fishing populations did not peak out until many years after the plant.

Plankton, tiny aquatic animals, are the kokanee's basic food supply, although the salmon will also feed on aquatic insects and worms. Gill rakers, located on the inside of the gill arch, act as filters to strain the plankton from the water. The adult normally inhabits the pelagic or "open water" areas of a lake and is not usually associated with the shore areas. In favorable lakes with an abundant food supply, they may reach two to three pounds at maturity. Twelve to fifteen inches (one pound) is the average size for most four-year-old fish. In lakes with poor food conditions they may be no longer than eight inches at spawning, not very desirable from the fisherman's point of view.

Most of the fish that inhabit Montana's waters spawn several times in their lifetime. But like his four cousins from the Pacific Ocean, the kokanee spawns only once and then dies. Spawning usually takes place in the fourth year of life, but an occasional kokanee may spawn at the age of three or live until he's five or six.

Members of the salmon family, including kokanee and trout, bury their eggs in a gravel bed in the presence of moving water. Because eggs and embryos need oxygen during their development, gravel beds in moving streams or spring seeps in lakes provide successful spawning areas.

The approach of the spawning season is signaled by a color change in the adult. Males become a reddish color and display a hooked lower jaw; the female changes from silver to greenish black. Feeding activities slow. An average one-pound female will

Kokanee artwork reprinted courtesy of the Utah Division of Wildlife Resources—Maynard Reece, artist.

Otis Robbins, Jr. is the department's district information officer in Kalispell. He did undergraduate work at the University of Pittsburgh, then received a Masters degree in fish and wildlife management from Iowa State University, Ames. Robbins also did post-graduate work in education at the University of Wyoming, Laramie.

deposit about 750 eggs. After fertilization by the male she covers them with a layer of gravel.

Spawning activities start in late September or early October, but the bulk of the population will spawn during November. Late spawners continue to arrive on the spawning sites through late December. Fortunately or unfortunately, as the case may be, the late spawners often destroy entire nests (redds) of fertilized eggs. Spawning is thus a one-shot affair; both males and females die after the eggs are buried.

Togetherness seems to be the way of life for kokanee, traveling in schools throughout their life. This schooling becomes more obvious in the fall as they migrate to their selected spawning areas in shallow water.

Thus the stage is set for one of Montana's most unique methods of fishing — snagging kokanee salmon on their fall spawning run.

And an added bonus is the congregation of bald eagles. Several hundred migrate into the Flathead drainage each fall to feed on the dead kokanee.

HOW TO SNAG SALMON

Snagging season was designed to harvest a portion of the spawning kokanee salmon and takes advantage of the numbers and shallow water. The fight of a snagged fish can be quite sporty on light gear, but in most cases heavier gear is used and the fish are quickly hauled to shore. Snagging is primarily done from shore or wading, with only a few fishermen using a boat.

A spinning rod and reel is the most popular gear for snagging. Terminal gear consists of one or two treble hooks of 2/0 or 3/0 size, weighted with a lead core. Most fishermen prefer a heavy, 10- to 15-pound test monofilament line. The hooks are cast out beyond the school of salmon and allowed to settle to the bottom. The retrieve is a series of short, hard horizontal jerks through the schooling fish. Hopefully, one of the unsuspecting fish will be impaled on one of the hooks —sometimes a fish on each hook.

A hand line is sometimes used in place of spinning gear in lake snagging but is seldom used in stream fishing. The terminal gear is very similar to that used by spin-fishermen. An added weight is sometimes placed on the end of the gear with the retrieve a series of short jerks.

Others prefer a cane pole about eight-to-ten feet long. A 15-foot line without a reel is attached to the end of the pole and resembles the fishing gear Huckleberry Finn used. Hooks and weight are the same as spinning gear and a strip of brightly colored cloth is attached to one of the treble hooks. The hooks are cast into the area where a school of kokanee are preparing spawning beds and allowed to come to rest on the bottom. When the kokanee move over the cloth, it disappears and the fisherman lifts the tip of the rod upwards very quickly, snagging a fish. Of course, fish must be quite close to shore in shallow waters for this method to work.

Kokanee congregate in pools of streams or along specific shore areas and make these areas excellent snagging spots. In some areas, fish congregate but cannot be seen. If the concentration is heavy, snagging blind produces as many fish as if the schooling fish could be seen.

Fishing success on a snagging trip depends on cooperation with old man weather, the spawning kokanee and knowledge of spawning grounds. The salmon usually spawn in the same areas year after year. A good sign of congregating fish is a crowd of fishermen.

A unique fishing opportunity, salmon snagging, lures hundreds of anglers to the Kokanee spawning waters. (F&G photo by Otis Robbins)

THE DEAR / DEER SYNDROME

A SPREADING INFECTION THAT STRIKES ADULT MALE SPORTSMEN LEAVING THEM SLEEPLESS, DISORGANIZED AND UNLOVED

by Susanna Fliger
illustrated by Vern Craig

EVERY FALL, HERE in Montana, I note the reoccurrence of a serious ailment. I call it the "Dear/Deer" syndrome in an effort to explain the shift that occurs in the minds of many men, much to the confusion and consternation of their wives or girlfriends. After you have suffered through this illness a few times, you will have some insight and begin to adjust, but in case you are a new bride or have just moved to Montana, you should be forewarned and prepare accordingly.

Hunting is a strange obsession from a feminine viewpoint and when the madness hits full force, your man's behavior may seem completely bizarre. His perspective seems to vanish and nothing (and I mean nothing) can sway the hunter from his self-appointed task. Once you understand the symptoms and realize the "Dear/Deer" sickness is incurable, but fortunately temporary, you will be able to cope with hunters and hunting.

In the worst cases, symptoms of D/D appear as early as August. The man develops a glazed look and begins to complain of vague physical ailments. Behavior will fluctuate wildly from complete boredom to restless activity and he will make statements like "I never get *out* anymore."

If you counter by suggesting an evening of dining and dancing, he may glower, growl something about "nobody understands" and stalk to the basement to clean his rifle in gloomy solitude.

To the uninitiated, this can be an unnerving situation—Prince Charming becomes a dragon. You may even think you have said or done something to annoy him. He may act normal for a day or two, but will return to a mood that can best be described as impossible. Nothing you do seems to help. You are concerned; he is difficult.

At this point I must caution you. Don't be alarmed. Ignore his outbursts. He is suffering from the first stage of D/D, "the anticipation

blues." This attitude will soon subside in favor of a new habit, "the telephonitis."

The onset of this symptom may be gradual, but eventually you will realize this same man, who screeches like a wounded eagle when you call your mother and talk for a few minutes, is now making several long telephone calls, some of which may be long-distance.

When you ask him who he's talking to, he'll say Gary or Dave or Harold, but couple these calls with the way he's been acting, and you worry and wonder even more.

Before you hire a detective or run home to mother, listen carefully to their conversation and relax. Are you going to worry about anyone who will spend 15 minutes discussing the gunk you put on boot laces to make them waterproof? Gary, Dave and Harold have got to be acting as nutty as he is.

Just prior to opening day, when you have gotten used to being semi-ignored, he will lapse into another, more maddening, phase. He will get a terrible case of the "Where is it?" You know—"Where is my air mattress? Where is my scope cover?" So frantic is his activity, you may actually find yourself racing through the house madly searching for something and you don't even know what it looks like. He'll be convinced you sold all his equipment at your last rummage sale and you will be thinking you were stupid not to have hung a tag on him on the off-chance someone would have hauled him off.

This, too, will pass. Eventually the hunter will get everything together and be on his way. At this point you have survived the worst of D/D if you can just remember one simple rule. Never, *never.* NEVER try to make a man choose between you and hunting. You may be unpleasantly surprised if he chooses hunting (an ego-shattering experience). If you do get him to stay with you, he will behave so miserably and resentfully, you will wish he had gone.

Let him go and be glad. It will give you a chance to do some shopping, go to auctions or re-decorate the house without his comments and supervision. (After all, he got to go hunting, didn't he?) Besides, once he gets that D-E-E-R off his mind, he will more than make up for treating his D-E-A-R so indifferently. When he comes home with that big buck and struts around like Tarzan, smile and say something complimentary. Your tolerance and understanding will be appreciated beyond measure.

MONTANA FLORA

AND WHAT IT MEANS TO WILDLIFE

SILVER SAGE

Silver sagebrush, like other members of the sage family, is a plant especially important to the welfare of Montana's wildlife.

Antelope studies in central and southeastern Montana reveal that big sagebrush, fringed sage and silver sagebrush represent the animal's most important food items during late fall, winter and early spring.

Not only must silver sage be available to antelope when they seek it, but the plant must not be overbrowsed.

In addition to antelope, silver sage also appears in the diets of domestic livestock, deer, elk and prairie grouse.

case in point—The spraying of silver sage and other sagebrush drastically impairs a given area's capacity to support wildlife. —*Harley Yeager*

a good place for garbage

Every evening the garbage sack under my counter over-flows, giving off a vague, soggy smell. It's just one installment on the two tons of garbage my husband and I will generate this year.

And that two tons of garbage is going to keep coming back to haunt us. It'll be evident in the water we drink, the air we breathe and in the garbage dumps we see. The garbage we produce will be a personal—as well as a public—problem.

There doesn't seem to be an immediate answer to the garbage accumulation problem, but there is. Composting is one of the best solutions.

Composting, says Webster, is a mixture of decaying organic matter, such as leaves and manure, that's used as fertilizer. Granted, using the literal definition, it doesn't sound as appetizing as the soggy garbage problem. In reality, it can solve it.

Composting is used by nature to transform organic wastes into humus, a necessary ingredient of productive soil. It's also been used by man as long as he has planted crops and plowed in the fall. Technically, that's called sheet composting—putting raw, organic matter into the soil and allowing it to decay while no crops are growing.

Perhaps that process didn't seem to be composting. The word usually calls to mind outdoor piles of leaves and dead plants—compost heaps. It is this method that can be adapted to the indoors, cold weather and your garbage problem.

To begin this fall, all you need is two large waste baskets or trash cans and a heavy plastic trash bag. Fit the bag inside one can or basket, fill the other with a winter's supply of soil and you're ready to begin your pantry compost.

Almost anything can be added to the compost. Anything except fats and oils. These seem to interfere with the oxygen circulation and retard the decaying process. Newspapers, paper napkins, dust, floor sweepings, cloth and animal cage sweepings all decompose. Add the hair from your brush and the trimmed ends from your son's last haircut.

Just be sure to dampen any large amount of dry ingredients (like newspapers) and roll the can every third day to mix the contents. Shred large pieces of waste so more sides are available to the decaying process and add a layer of dampened soil every week.

The soil will effectively seal the compost against odor and insects. And the top of the plastic bag should be folded over (but not tied shut) when you are not adding to the compost. The decaying will not produce any odor and the compost can easily be kept in a pantry, basement or porch throughout the winter. When you have filled one bag, take it out of the can, fold the top over, store it in a corner and start another.

In fact, now is the ideal time to start an indoor compost. Four or five months are needed to complete the decaying, humus-producing process. So when you pare vegetables or throw away leftovers, add them to your compost heap. A layer of dirt each week and your compost will ready itself for the garden or flowerbed next spring.

And after you have started your pantry compost, why not work to get a compost heap started for your city? Of all the alternative methods for treating municipal wastes, composting is one of the few processes that creates a potentially useful material.

A NEW JOB

Increasing awareness of the need to preserve the environment may have added a new word to the English language and a new occupation to the job market.

An "ecolomist" is reportedly a person well versed in ecology and trained in economics. His job—to mold real estate development economics with the necessities of a clean environment.

THAT'S ALOT OF MAYONNAISE

More than 211 million used glass containers have been reclaimed and recycled into new bottles and jars during the first three months of 1972. The figures were released by the Glass Container Manufacturers Institute.

This compares with 96 million bottles and jars collected by the public in the January to March quarter of 1971. The institute also reported that more than one billion bottles have been recycled into new glass containers and other secondary products since the reclamation program began about two years ago.

recycled paper

EDITOR'S NOTE: We didn't have room to review all the volumes in Our Living World of Nature series, so we picked these three. We think they are representative of the entire series.

THE LIFE OF RIVERS AND STREAMS by Robert L. Usinger, Our Living World of Nature series, McGraw-Hill in cooperation with the World Book Encyclopedia, 232 pages, no price listed.

Few of us in modern society are aware of the complexities of our great water system. *The Life of Rivers and Streams* divulges many of the hidden secrets of Mother Nature.

With many beautiful color photographs and excellent writing, Usinger shows the reader just how complex our natural water system really is and shows how it is affected by man. He gives some suggestions for man's adaptation to the water and not water's adaption to man.

The book also contains a guide to national parks, monuments and wildlife refuges in the United States along with a guide to aquatic insects and a list of the vanishing fishes of the United States.

This is truly a fine book for home or classroom with its many pictures of life surrounding our great water system. My compliments to Robert L. Usinger.—*Craig Sharpe*

THE LIFE OF THE MOUNTAINS by Maurice Brooks, Our Living World of Nature Series, McGraw-Hill in cooperation with the World Book Encyclopedia, 232 pages, no price listed.

Mountains aren't just piles of rocks and stones and dirt, covered with trees and grass and sometimes snow. They are history books, rich in folklore and legends of the past. They are gardens, filled with the color and scent of beautiful alpine flowers. They are sanctuaries for many species of wild birds and animals who can no longer compete with man for the valleys below and are therefore making their last stand in the mountain wilderness areas. Strangely, man himself finds a sanctuary in these same mountain wilderness areas — a place where he can be free from the pressures imposed by his own human society and once again enter the world of nature. Mountains are still a challenge to man—a chance for man to pit his strength, courage and ingenuity against the most formidable obstacles of nature. Man will always climb mountains—"just because they are there."

This book, written by a man who was born and lived in the mountains, offers the reader an incredible amount of information about the fauna and flora of mountains as well as the history of America's mountains from the eastern Appalachians to the western Rockies. The color photographs of the plants, animals and birds range from the tiny alpine forget-me-nots to the towering redwoods, from the little golden mantled ground squirrels to the mighty buffalo and from the gay western tanager to the mighty golden eagle. These will delight anyone, even those too young to read.—*Joyce MacDuffie*

THE LIFE OF THE PRAIRIES AND THE PLAINS by Durwood Allen, Our Living World of Nature series, McGraw-Hill in cooperation with the World Book Encyclopedia, 232 pages, no price listed.

The Life of the Prairies and the Plains looks at North America before Columbus' ships started their westward voyage.

Allen lays out the plains and prairies in their pristine magnificence and fills in the wildlife and vegetation with irresistable strokes. The author introduces the Indian and uses graphic words and excellent pictures to reveal the dynamic equilibrium of raw nature. The white man and his influences are added to the prairies and the plains, and the picture becomes today.

The historical aspect of the prairies is necessary for an understanding of today's wildlife and vegetational complex. Readers may be shocked to learn the land-mix of most areas today bears no resemblance to its past. Allen strongly suggests a national park system to preserve the prairies and the plains.

This volume is a gem of information and readability.—*Bob Carroll*

MIKE MANSFIELD'S MONTANA, photographed by Mike Sample, available from Goatrock Publications, Box 279, Billings, MT 59103, paperback, 50 pages, $2.98.

Montana is diverse. Within its borders, a visitor can see the endless expanse of the great plains or the crags of western peaks, the slow, rhythmic movement of lowland waterways or the cascading, whitewater madness of a mountain stream, a field of golden wheat or a stately stand of Ponderosa pines—to cite only a few examples.

And now one can enjoy it all and never leave his favorite reading chair, provided he takes a short trip to the local bookstore for a copy of *Mike Mansfield's Montana*.

Photographer Mike Sample has combined an epic speech by the learned statesman with his own version of Montana in the form of 56 striking color reproductions. Both the words and photos show the "first love" these two people have for Montana's scenic beauty and rich natural resources.

Senator Mansfield obviously wanted Montanans to know exactly how he felt about his state. On Aug. 24, 1967, he made the speech that has now been transformed into a pictorial essay by Sample.

He starts his oratory, "The bond that ties me to Montana is woven of many strands. But before all else, it involves my personal feeling, as a citizen of the state, for its beauty, history and people. For you who are not of Montana, let me try to tell why the bond is inseparable, insofar as I am concerned. Let me try to explain to you why Montanans who are outside of Montana are always homesick for Montana." The words that follow tell the reader exactly what he's missing if he isn't a Montanan or what he will miss if he is a Montanan and is planning to leave the state.

recycled paper

And Sample's skill with a camera, which is considerable, makes the Senator's words even more descriptive.

So now if you want to show off your state to a newcomer or an out-of-stater, it's easy. Just let them page through these 50 pages. Everything that is Montana is there. — *Bill Schneider*

WHITETAIL — FUNDAMENTALS AND FINE POINTS FOR THE HUNTER by George Mattis, an Outdoor Life Book, World Publishing Co., New York and Cleveland, 1969, 273 pages, $6.95.

Whitetail, written about eastern deer hunting, should interest any avid deer hunter. Author George Mattis, obviously an accomplished outdoorsman and hunter, includes a storehouse of knowledge on the fundamentals and fine points of hunting this elusive game animal.

Sections of the book cover still hunting, trail watching, tracking and outdoor lore. However, the author goes astray when he discusses biology and whitetail management. His views on these subjects don't represent sound game management principles or a knowledge of the literature on whitetail management and life history.

As an example, Mattis completely misses the carrying capacity principle that deer numbers and deer habitat must be balanced by hunter harvest to optimize population and habitat levels.

His discussion of whitetail food habits comes from personal observation and fails to note that deer selectively feed on certain plants and plant parts. He also dwells on the "crippling loss" of deer, but only sparsely covers the most crucial limiting factor on deer numbers—habitat destruction by either too many deer or man's activities.

The book includes some good tips and techniques about whitetail hunting, but the author's "opinions" on whitetail biology and management leave something to be desired.—*Steve Bayless*

GAME, GUNNERS AND BIOLOGY: THE SCIENTIFIC APPROACH TO WILDLIFE MANAGEMENT by John Madson and Ed Kozicky, Conservation Department of the Winchester-Western Division of Olin, East Alton, Illinois, Winchester Press, 1971.

Game, Gunners and Biology is a concise history of game management in the United States, especially during the conservation era of the 1920's and 1930's. The authors relate the wildlife situation during the period of settlement in the West; they do not castigate the hunters but explain objectively why the large herds were reduced. They indicate our "wild wealth" was not wasted, but spent. During this period hunters, trappers and settlers didn't have the time, desire, knowledge or technology to manage this wildlife resource.

In 1925 Aldo Leopold, in the bulletin of the American Game Protective Association, wrote, " . . . We have learned that game, to be successfully conserved, must be positively produced rather than negatively protected . . . We have learned that game is a crop, which nature will grow and grow abundantly, provided only that we furnish the seed a suitable environment."

These ideas are true today, although anti-hunting groups threaten to restrict hunting and return game management to the position it held during and after the turn of the century. Today we have the knowledge and technology to maintain and develop wildlife numbers.

Part of the title of the book, "The Scientific Approach to Wildlife Management", is misleading and seems to indicate the reader will have to wade through pages of scientific terminology. Instead the book is easy-reading, historically interesting and profusely illustrated with cartoons.—*Robert Rothweiler*

BOOKS RECEIVED

—reviewed in brief—

TRACKS AND TRAILCRAFT by Ellsworth Jaeger, MacMillan Co., New York, 1969, 381 pages, $5.95.

The author presents a wealth of track and trailcraft lore, once the intimate knowledge of trackers, but now a dying art. He describes hundreds of tracks and illustrates them with pen and ink drawings.

GOURMET COOKING FOR FREE by Bradford Angier, Stackpole Books, Harrisburg, Pa., 1970, 190 pages, $4.95.

This book has recipes for everything from venison ribs to wild berry shortcake and presents them in a manner that will have your mouth watering. Most recipes are written to be prepared at home in the kitchen with a variety of ingredients, so this isn't the sort of book you would take with you on a camping expedition.

GOING CAMPING by Alvin Schwartz, MacMillan Co., New York, 1972, 250 pages, $5.95.

This book was written for the novice camper. It covers every aspect of family camping, from estimating costs and acquiring equipment to breaking camp before leave for home.

WILDERNESS CANOEING by John W. Malo, MacMillan Co., New York, 1971, 167 pages, $6.95.

Wilderness Canoeing is an excellent guide for anyone planning to canoe through the remaining wilderness. It covers all of the North American continent and every aspect of canoe-camping. And has many photographs and pen and ink drawings together with a very readable text.

A CONSERVATION SAGA by Ernest F. Swift, National Wildlife Federation, Washington, D.C., 1967, 264 pages, $5.00.

The author has spent his life developing and applying a true philosophy of conservation and in this book, he presents it to the public. Sometimes the picture he paints isn't very pretty.

wildlife shorts

Although moles live underground their entire life, their glossy coats never get dirty.

* * *

Bats are the only mammals capable of true flight.

A bull moose must eat 40-60 pounds of food each day to maintain itself.

* * *

The flying squirrel can't fly. This nocturnal rodent is, however, an accomplished glider that, with the help of wing-like membranes between fore and hind legs, can soar up to 100 feet.

Some birds actually allow ants to stream over their bodies. There seems to be a preference for ants that secrete formic acid. Experts suspect the insecticidal properties of this compound may kill parasites lodged in the bird's feathers and especially on wings that can't be reached by the bird's bill.

recycled paper

trout growers take issue

Recently I have noticed publication in the MONTANA OUTDOORS magazine and the Billings Gazette of a study by Fish and Game Biologists reported that planting catchable size trout in the Madison River has reduced the total trout population in that stream by one-half.

If this is true, then it should be used as information to improve planting procedures of trout by the Fish and Game Commission. According to this report, catchable size planted trout cost the state $5.05 per pound for every pound of fish caught. This seems to be quite expensive, as Montana commercial hatcheries sell live trout for stocking private ponds for $1.20 per pound, or 35 cents per 10-inch catchable size trout.

If these findings by the biologists are correct, what is the cause? This might be caused by large numbers of trout being dumped at the few accessible dumping spots along the river, such as bridge sites, access campgrounds, farmer's yards, etc., where a heavily loaded tank truck could approach a stream without becoming bogged down in the mud and losing the entire load of live trout, dying in the tanks.

Dumping in only the few spots would s a t u r a t e a small area of stream with too many trout and not enough natural food, causing mortality, while the unaccessible spots would receive no stocking at all, with the total effect being reduced trout population of a stream. This is a situation which should and can be corrected.

My suggestion for successful stream stocking is to drop the trout from a live tank in a boat, as it floats down the stream. Admittedly, this is a slow and tedious process, but at $5.05 per pound it is worthwhile to plant trout correctly in a stream so they have a chance to survive. The trout planted in unaccessible spots also have the chance to reproduce as wild trout, which would increase the total trout population.

Montana state-operated hatcheries are needed to stock new lakes, new reservoirs and streams where road construction silt has eliminated many trout spawning beds. Hatchery reared trout become wild trout within four or five days when they must search for food. Studies show that trout planted in a stream tend to stay within 200 yards up or down stream if there is enough natural food available. This is true, even through high water periods.

Many of our customers have become confused with this publicity, even though the study applies to the Madison River and not to the many private ponds we have stocked in Montana. Therefore we are concerned about this publicity on stocking trout and hope this situation can be improved.

Paul B. McAdam, President
Montana Trout Growers
Jumping Rainbow Ranch
Livingston, MT

● *We agree that the findings of the Madison-O'Dell Creek Study, if true, should be used to improve Montana's fish planting procedures and our overall fisheries management program. That is certainly what we intend to do with the data after the study report has withstood the scientific criticism to which we are now subjecting it.*

Your cost per pound comparison is misleading because it tries to relate two dissimilar things. The state's cost to produce and plant 10-inch fish is around $1 per pound. The fish on the Madison cost over $5 per pound in the creel because anglers got less than 20 per cent of them back. Had we used $1.20 per pound fish from commercial hatcheries in the Madison, their cost in the creel would have been over $6 per pound.

We have no doubt the high numbers of fish, such as were used in our Madison planting, magnify whatever effect planters may have on wild trout. We would also agree that drastically reducing the concentrations of planted fish (by cutting down the total number and by spreading the planted fish widely up and down the river) would minimize their effect on the wild fish. The problem with such a procedure, however, is that it would also minimize the effect of the planted fish on the angler. In other words, we would get a lot less than our present 20 per cent return so the cost per pound in the creel would be $10 or $15 rather than $5.

Neither our shocking or our creel census work on any of Montana's planted streams supports your statement that h a t c h e r y fish become "wild" in four or five days. It has been our experience that even the very best conditioned hatchery trout, when stocked in our study areas, have declined steadily in condition for a month or more. True, the occasional planted fish surviving to the next year has made the grade to "wild." But that fish is the rare exception. We have never found over five per cent of the total plant surviving the winter and frequently this survival is one per cent or less.

We have to remember in stream planting that rivers like the Madison, with good natural reproduction, have many more small t r o u t than can ever survive to catchable size. Every spot at the "table" is full and plenty of hungry mouths are ready to take the place of some relative unlucky enough to be removed by a fisherman. Thus, there is no need for us to try to replace every fish caught by an angler. Under Montana's relatively light fishing pressure, Mother Nature makes that replacement immediately, although usually with a slightly smaller fish.

Therefore, if our data holds up (and we have every reason to believe it will), we must ask an important question: "Is there any place else we can put our efforts that will be of equal or more benefit to the man who wants easy roadside fishing but where we won't degrade the sport of the man who wants wild fish?" Thus, if and when we recommend to our commission that we stop planting catchables in streams that have good numbers of reproducing wild trout, we will have some alternatives to suggest. One of these very likely will be increased lake and reservoir stocking of subcatchables, particularly in lakes with little or no natural reproduction. That type of stocking is in no way discredited by the data from our Madison-O'Dell Creek Study.

We are sorry many of your customers felt the article indicated all stocking was bad. It certainly isn't, and it was not our intent to so portray it.—Art Whitney, Administrator, Fisheries Division.

editorial

EARLY EACH SUMMER orphaned wildlife appears at Fish and Game offices. This year, of particular interest, and perhaps special significance, was a pair of grizzly cubs, orphaned when their mother was killed during a conflict of interest between herself and the owner of a band of sheep. The sow and her cubs originated in Glacier Park. Ten days before her fatal encounter with man, park rangers trapped, tagged and removed the family from an area near a public campground. You might say at that moment the whole family was orphaned, separated from a secure habitat all animals must have to survive.

F&G photo by Tom Warren

Early records indicate at one time practically all of Montana was secure habitat for the grizzly. Lewis and Clark encountered the "great white bear" east of Glasgow along the Missouri River and frequently marveled at the size and strength of the animal.

Today grizzlies persist only where habitat is suitable and isolation provided. When man encroaches, usually altering the environment to suit himself, history proves that animals must either adapt or perish. The grizzly has not proven to be the most adaptable of animals.

Today the plains grizzly is gone as surely as the plains buffalo. Gone, not to the hunter's gun, but to the plow, the fence, the irreconcilable conflict of interest. The grizzly, like man, is either unwilling or unable to share his dominance.

The outcry to "save the grizzly" now echoes across the land. Many argue this can be accomplished by restricting the hunter. This simple solution unfortunately offers nothing but the illusion that the species is being preserved. Thoreau wrote, "In wildness is the preservation of the world." Perhaps we must acknowledge, "In wilderness is the preservation of the grizzly."

What of the cubs mentioned earlier? Too young to survive in the wild, their fate rests on the benevolence of man. Born in the magnificence of Glacier's wilderness, their future will be spent in captivity. Their only option is the quality of zoo where they will beg peanuts and garbage from hordes of humans, gawking and laughing across their moat. Hopefully the memory of freedom and wildness is etched too dimly on their memories to last.

Such is the grizzly's fate in today's modern world, and such is the story of these two cubs. Some would say it's a "fate worse than death" for the mighty grizzly—a symbol of the wilderness.

It is apparent that if the species must ultimately die, this is how the final scene will be played. The requiem sound will not be the roar of the hunter's gun, but the pitiful whimper of a homeless, caged cub.—*Jim Posewitz*

MONTANA OUTDOORS
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EDITOR'S NOTE—The following is a complete index of articles published in MONTANA OUTDOORS. Three of our issues, November/December 1970, January/February 1971 and May/June 1972, are out of print and may even be considered collector's items. A limited amount of the remaining issues are, however, still available and can be ordered by writing MONTANA OUTDOORS, Dept. of Fish and Game, Helena, MT 59601. Copies are 50c per issue.

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FOUR WHEELED HUNTERS

F&G photo by Tom Warren

where do we go from here?

by Harley Yeager

THE END OF my hunt was in sight. At least that's what I thought as I took a deep breath and began taking up trigger slack. My target was a five-point bull elk.

As my finger tightened on the trigger, I thought of all the nice juicy steaks I'd soon be devouring. And that's when it happened. A gang of hunters in a four-wheel drive outfit burst out of a clearing below me making enough noise to stampede a herd of cattle. And away through the brush ran those juicy steaks of mine. As I vented my anger in the direction of the so-called "sportsmen" who fouled up my hunt, one thought stuck in my mind, "Those four-wheelers gotta go."

Has that ever happened to you? If it has, you probably think four-wheel drive vehicles should

be banned from some hunting areas. Or maybe you're an avid four-wheel drive user who thinks there are too many off-road vehicle restrictions now. In either case, this article is especially for you.

I asked Eley Denson about the use of four-wheel drive vehicles for hunting. (He's an environmental specialist for the Bureau of Reclamation, Billings, a four-wheel drive owner and avid hunter.) He said, "They should be driven on established roads or trails going to and from a hunting area with the actual hunting done on foot." Denson, the former assistant chief of the Office of Endangered Species with the U. S. Fish and Wildlife Service, also made the following observation, "The misuse of vehicles (four-wheel drive and others) for chasing wildlife has given ammunition to anti-hunting groups in their drive to ban sport hunting. This non-sporting activity has also created a bad image for hunters in the general public's eye."

(It should be noted that according to Montana law, it is unlawful for anyone to use a self-propelled vehicle to intentionally concentrate, drive, rally, stir up or harass game animals, game birds or fur-bearing animals.)

Bill Redd, construction foreman for the Recreation and Parks Division of the Montana Department of Fish and Game seems to agree with Denson. "If people can drive to an area, chances are that the area will be misused." He added that during the ten years he's worked on recreation areas in Montana, he's seen many grassy knolls turn into erosive gullies from misuse of four-wheel drive vehicles.

On the other side of the coin are those who depend on four-wheelers for recreation. At the August 1972 meeting of the Billings Rough Riders (four-wheel drive club), the members discussed restrictions for four-wheel drive hunters. They unanimously agreed that all off-road vehicles should be kept on existing roads and trails at all times of the year. Furthermore, they thought all existing roads and trails requiring four-wheel drive should be left open, but not improved or maintained. The members also felt some type of access should be provided to inaccessible tracts of public domain lands.

In their opinion, if existing regulations for off-road vehicular travel were properly enforced, additional regulations would not be needed.

the upsurge of four-wheelers

Increased demand for four-wheel drives of all sizes, shapes and descriptions has multiplied their numbers in the U. S. from a scant 115,000 in 1960 to an estimated 2,200,000 in 1972. This upsurge is, in part, a reflection of our affluent society where more people are interested in types of outdoor recreation that utilize four-wheel drives. Also, many businesses and industries, including agriculture, use four-wheelers as a regular part of their everyday operations.

In Montana, four-wheel drives are especially popular with hunters. A survey of sportsmen hunting the Fleecer-High Rye area south of Anaconda during the 1971 season revealed that two-thirds of those hunters responding to the mail questionnaire used four-wheel drive vehicles. Interestingly enough, 83 per cent of these hunters favored regulations that would restrict their vehicles to existing roads or trails or main roads. A 1970 survey of hunters using the Upper Ruby River area in southwestern Montana indicated four-wheel drives accounted for 73 to 91 per cent of all vehicles checked at weekend check stations. The percentages increased as roads became more snowbound.

vehicle use influences game seasons

National forest lands in western Montana demonstrate what can happen to elk hunting seasons when vehicular access (including four-wheelers) increases. With more logging roads funneling more hunters into elk areas, the desired harvest was accomplished in fewer hunting days. Over a three-year period, the length of the hunting season was cut in half to prevent going over the desired elk quota. This, in short, means more access has caused a necessary decrease in total hunting opportunity.

According to Gene Allen, research committee chairman of Montana's elk-logging-road study, "In most areas, a certain amount of access is desirable and necessary to maintain elk harvests at a level compatible with game management goals. However," Allen notes, "access is like many other things—just because a little bit is good, it does not necessarily follow that a lot is better." After reviewing data from uncompleted studies, Allen suspects road building and subsequent vehicular use alters seasonal distribution of elk. In the Little Belt Mountains of central Montana, fewer elk have been seen and harvested in the South Fork of the Judith River since logging roads were built. The area gets the heaviest vehicle use during the fall hunting seasons. By comparison, elk observations and harvest have stayed even or increased in the unlogged Lost Fork and Middle Fork of the Judith. Studies in progress in these areas should add solid information on the effect of logging and increased access on elk distribution and harvest.

Similar work has been done on mule deer. Richard J. Mackie, a former department research biologist and now associate professor of wildlife management at Montana State University, Bozeman, drew some interesting comparisons between hunter accessibility and mule deer harvest. In the winter 1964 issue of MONTANA WILDLIFE (the predecessor of this publication), he compared three adjacent, similar areas of the Missouri Breaks. All contained good deer numbers and large tracts of public land, but two of the areas had good vehicle access while in the other it was poor. Vehicle traffic was not limited to established roads or trails in any of the

FOUR WHEELED HUNTERS continued

three areas. However, terrain in parts of the areas required a four-wheeler to cross it. During wet weather a four-wheel drive was also a must.

The two areas most accessible to hunters were located in South Phillips-South Valley counties and northeast Fergus County. These areas received the greatest hunting pressure and harvest. The third area, located in North Petroleum County and accessible only by 35 to 50 miles of travel over dirt and gumbo roads, was subjected to light hunting pressure and had a corresponding smaller harvest of deer than the other two areas. Mackie noted that average deer weights corresponded directly to hunting pressures and harvest. Deer from the two heavier hunted areas averaged 7 to 20 pounds heavier than deer of the same age from the lightly hunted area.

Based on this data, vehicle use (including four-wheelers) may play a very important role in achieving deer management objectives in some hunting areas.

new federal off-road vehicle regulations

On the national scene, President Nixon's Executive Order 11644, "Use of Off-Road Vehicles on the Public Lands", will undoubtedly have far-reaching effects on our country's five million off-road recreational vehicle owners, and especially those who hunt. The act reads: "The widespread use of such vehicles on the public lands—often for legitimate purpose, but also in frequent conflict with wise land and resource management practices, environmental values and other types of recreational activity—has demonstrated the need for a unified federal policy toward the use of such vehicles on the public lands."

Within six months of the Feb. 9, 1972 order, all public land agencies were instructed to issue regulations that would specify areas and trails where off-road vehicles would be used or restricted. At this writing, this requirement has only been partially met in Montana. The U. S. Forest Service has imposed "voluntary" vehicle controls on national forest lands. The Bureau of Land Management has not issued any regulations at this writing. USFS control asks the public to keep their vehicles on existing roads and trails. Portions of some roads are also closed under these controls. As a prerequisite to issuing regulations, the President's executive order states: "Each agency head shall insure adequate opportunity for public participation in the promulgation of such regulations and in the designations of areas and trails." And according to the executive order, each respective agency head shall develop and publish, within one year of the date of the order (Feb. 9, 1973), regulations prescribing operating conditions for offroad vehicles on public lands.

Harley Yeager, the district information officer in Billings, has worked on a full-time basis with the department since 1967. Beginning in 1958, he held various part-time positions with the department at Bozeman and Great Falls. He graduated from Montana State University, Bozeman, in 1962 with a Bachelor of Science degree in fish and wildlife management. The Montana native later completed one year of graduate work at Montana State University.

state regulates recreational use of vehicles

The day appears to be at hand when regulating the recreational use of vehicles will be a necessity if more areas are to be kept open to the public. As an example of this on private lands, the Montana Fish and Game Commission regulated vehicle travel to specific roads only in a 120,000-acre area in the Square Butte region of north central Montana for the first time this fall. The purpose of the regulations is to prevent further vehicular damage to soils and vegetation in an area that has been badly misused in previous years. In fact, it was so badly mistreated by hunters, fishermen and other recreationists that local landowners were on the verge of posting all their lands. Finally, an agreement was worked out between local Fish and Game personnel and the landowners and approved by the Commission.

Restricting vehicle use in the north central Montana area will probably result in fewer deer harvested; however, this is a better alternative than no hunting at all. Furthermore, the hunter who walks or uses a horse won't have to compete with vehicle users in most of the area.

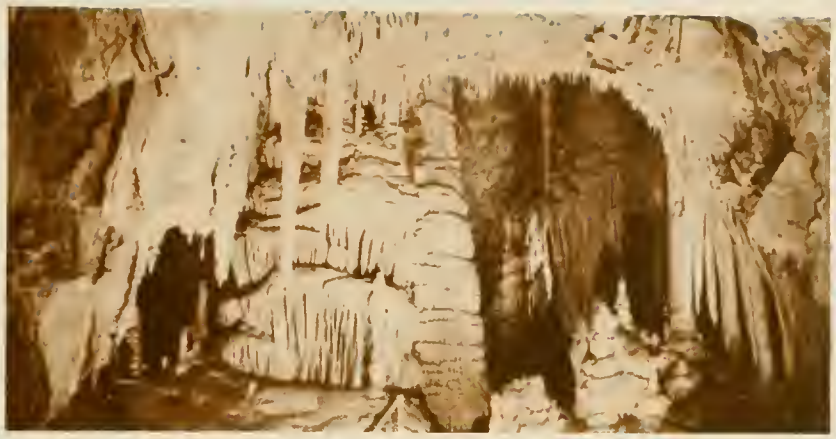
On state owned game ranges, vehicle traffic is controlled by limiting travel to main roads. And in some cases vehicle traffic is allowed only during a specified time period (usually 10:00 a.m. to 10:00 p.m.). This regulation provides more equal hunting opportunities. All hunters must walk during morning hunting hours and they don't have to worry about off-road vehicles scaring the game away.

where do we go from here?

If four-wheel drive vehicle owners (and other off-road vehicle users) except to stave off restrictive regulations concerning the recreational use of their vehicles, they must do a better job of policing their own ranks. The day is long past when a recreationist pursuing his favorite outdoor activity can exercise his freedoms without also assuming some responsibilities.

Quite possibly, new state legislation is needed to regulate vehicle traffic on private lands.

On some federal lands, more restrictive vehicle regulations seem a certainty. Hopefully, any new law or regulation concerning the recreational use of vehicles will be established only after the public has expressed their views and with full realization of the effects upon wildlife populations. In the meantime, the future of four-wheel drive hunting hangs in the balance.



F&G photo by Lee Huyser

LEWIS AND CLARK CAVERNS STATE PARK

THE LEWIS AND Clark Caverns are located in Cave Mountain overlooking the Jefferson River, the route the Lewis and Clark expedition traveled on their way west in the summer of 1805. But although the caverns were named after the expedition, the group was apparently not aware of its existence. The cave is not mentioned in their journals.

The Jefferson River canyon was also an important route for the wandering Indian. Undoubtedly they were aware of the cave long before it was discovered by the white man. Descendants of early tribes still talk about the "chimney of smoke" which rose from the mountain. This smoke is actually condensed water vapor, a result of warm air escaping from the cave entrance on below-zero days. No Indian artifacts have ever been found inside the cave; perhaps the nomadic Indians considered the area sacred and never ventured inside.

Records of the cave's actual discovery are somewhat confused. But apparently the first full-scale exploration and developments were made by Dan A. Morrison and for many years the cavern was known as Morrison Cave.

An ownership dispute arose, however, and Morrison could not obtain a deed to the site. The federal government took charge and in 1908 President Theodore Roosevelt proclaimed the area a national monument. It became a state park in 1937.

The Civilian Conservation Corps set up camp at nearby LaHood Park in 1935 and started work exploring and improving the caverns. Passageways were opened and limestone stairs cut into the rock.

Today the 2,770-acre area is a state park, open from May 1st to September 30th. Guided tours operate from 8 a. m. to 5 p. m. from May 1st to June 5th and from Labor Day to September 30th. From June 15th to Labor Day, tours are conducted from 8 a. m. to 8 p. m. Tickets are sold at the headquarters. Adults $1; children, 6-12 years, 50c.

The caverns tour requires about one and one-half hours, including the ride on the mountain railroad and the tramway. Passengers are conveyed from the headquarters to the tramway via a unique narrow-gauge mountain railroad. The passenger car is open and permits a bird's-eye view of the Jefferson Canyon as it climbs the one-half mile, 10 per cent grade to the lift. Here visitors board the lift and travel 465 feet at a 36 degree angle to the mouth of the caverns. The lift is fitted with two safety devices to prevent the possibility of any downhill fall and the cable is designed to sustain several times the actual load.

The interior of the cavern is electrically lighted to make the tour safe and enjoyable. The cave is naturally air-conditioned and maintains a constant 46-degree temperature.

The largest and most spectacular room in the caverns is the "Paradise Room." One column, the "Empire State," is 15 feet in diameter and 26 feet high. Geologists estimate limestone drops were deposited for one million years to form the column.

The park area also provides picnic sites for a leisurely lunch. An overnight campground was completed in 1971 and at the headquarters, Mr. and Mrs. L. W. Link operate a cafe-curio shop for light lunches and souvenirs. When the park closes this year, some 90,000 visitors will have toured the caverns.—*Ashley Roberts*

location and notes

Lewis and Clark Caverns State Park is located on U. S. Highway 10 about 50 miles east of the Treasure State's famous mining town, Butte. Twenty miles to the east is the Three Forks region, where the Jefferson, Gallatin and Madison rivers join to form the headwaters of the Missouri River. The park is in the heart of the Rockies on a direct route between Glacier and Yellowstone national parks. From the visitor's center on the highway, it is a scenic three-mile drive to the cavern's headquarters. And the park exit is marked on Interstate 90.